PROPOSED TRANSPORTATION NETWORK AND TRAFFIC IMPACT STUDY

An existing transportation network surrounds the 1,850 acres owned by EPWU-PSB in Northwest El Paso. The site is accessed via (Woodrow Bean-Trans Mountain Road, Loop 375). Major roads near the site include Interstate Highway 10 (IH-10), Paseo Del Norte (SH 178), Resler Drive, Redd Road and Northwestern Drive. The existing transportation network is shown on Figure 5-1.

2025 THOROUGHFARE PLAN

The City of El Paso, Department of Planning Research and Development has adopted the 2025 Thoroughfare Plan for the City of El Paso, Texas. The 2025 Thoroughfare Plan was approved on March 1999 and its last revision was completed on February 2003. See Figure 5-2 for the 2025 Thoroughfare Plan in the vicinity of the site.

The 2025 Thoroughfare Plan shows major roads planned in the vicinity of the site. The plan proposes the extension of Paseo Del Norte, Redd Road, Northern Pass Drive, and Rancho Norte Drive. Paseo Del Norte, proposed as a major arterial, will be extended in a northeastern direction from its terminus at Northwestern Drive and will connect with Trans Mountain Road. Redd Road is proposed as a major arterial and is shown as extending north from its current terminus and connecting to the proposed Paseo Del Norte. A minor arterial, known as Northern Pass Drive, is shown as extending east from its current terminus and connecting with Paseo Del Norte at Redd Road. A second minor arterial, known as Rancho Norte Drive, is shown as extending east from its current terminus at Northern Pass Drive and connecting with Paseo Del Norte.

METROPOLITAN TRANSPORTATION PLAN

The Metropolitan Planning Organization (MPO) has developed a traffic projection model for the City of El Paso, Texas. The traffic model is known as the 2025 Metropolitan Transportation Plan (2025 MTP). The 2025 MTP shows the proposed transportation network for the years 2005, 2015 and 2025 with projected average daily traffic for major roads. See Figure 5-3 for 2025 MTP in the vicinity of the site.

The 2025 MTP is very similar to the City of El Paso 2025 Thoroughfare Plan. The difference between the two proposed plans can be observed in the proposed alignments for the extensions of Northern Pass Drive, Paseo Del Norte, Redd Road and Rancho Norte Drive.

PROPOSED TRANSPORTATION NETWORK

The proposed transportation network for the site will require changes to the City of El Paso's Thoroughfare Plan. A collector arterial 1,100 feet from the State Park which connected to Woodrow Bean Trans-Mountain Road has been eliminated. The alignment for a second

FIGURE 5-1
EXISTING TRANSPORTATION NETWORK

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WESTSIDE MASTER PLAN

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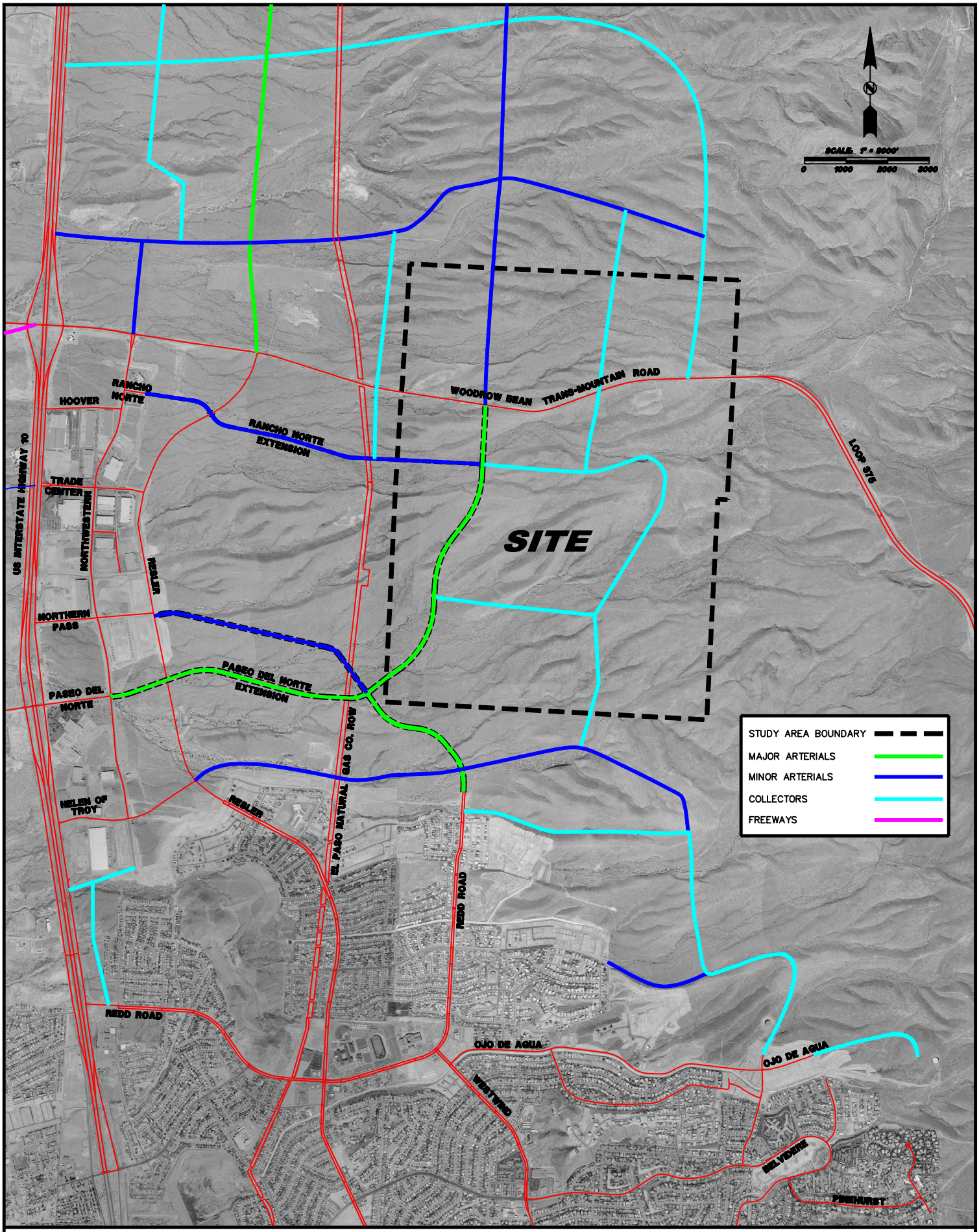

FIGURE 5-2
2025 THOROUGHFARE PLAN

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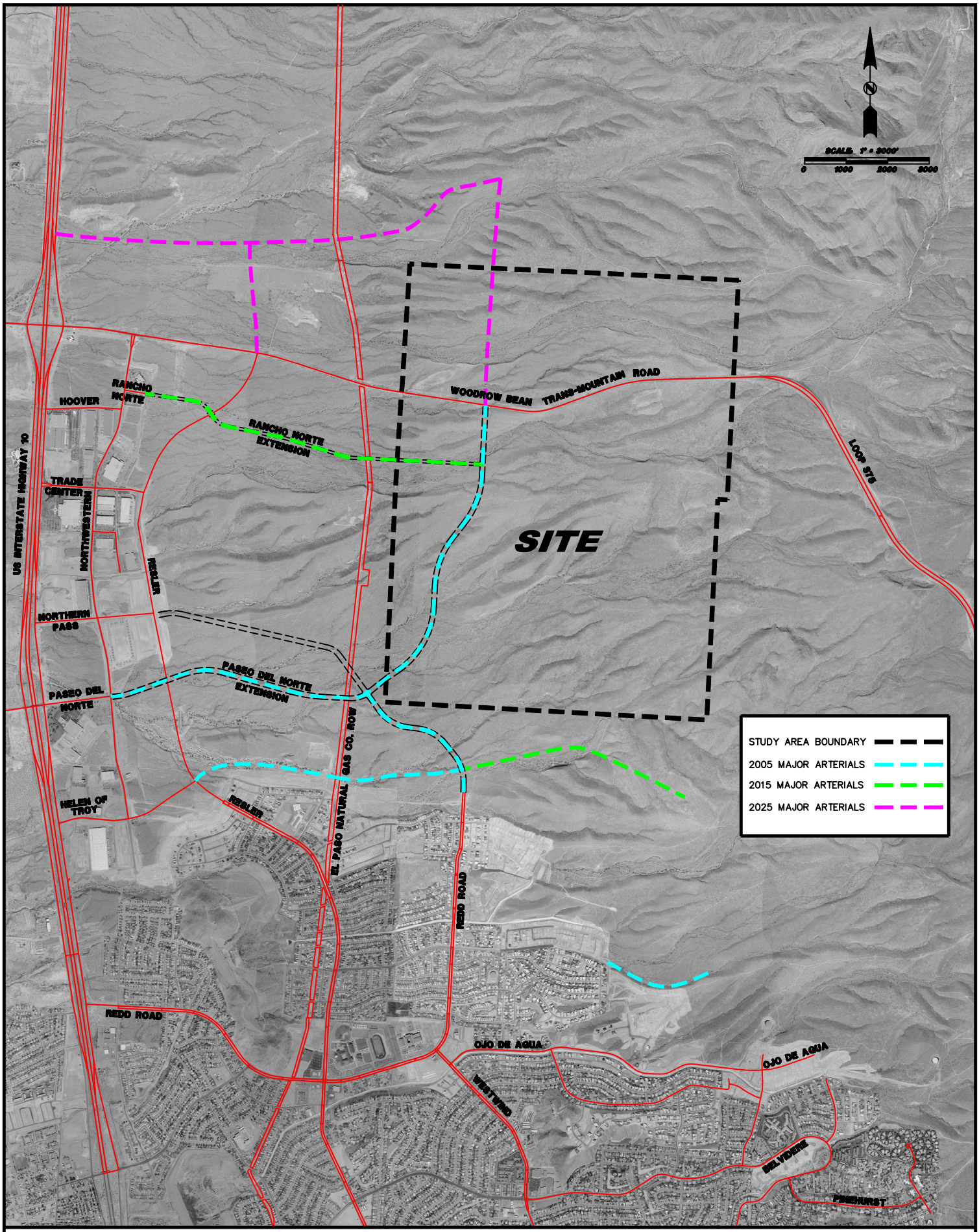

FIGURE 5-3
2025 METROPOLITAN TRANSPORTATION PLAN

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

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collector arterial located 3,300 feet from the State Park has been changed to connect to Paseo Del Norte. The roadway designation has been changed from collector arterials to minor arterials for all collector arterials located inside the property site. See Figure 5-4 for roadway designation and configuration of proposed transportation network for the property site.

The proposed major highway/street system for the site consists of the extension of Paseo del Norte (SH 178), the widening of Trans-Mountain Road (Loop 375) and the extension of Rancho Norte Drive. The Texas Department of Transportation (TxDOT) plans for the widening of Loop375. The widening of Loop 375 consists of adding direct connectors at IH-10 and Loop 375, interchanges at Resler Drive and future Paseo Del Norte, and frontage roads from the intersection of IH-10 to the future Paseo Del Norte interchange. Paseo Del Norte is a future TxDOT roadway construction project. TxDOT is in the process of developing agreements with local agencies and private property owners before they begin preliminary engineering on the project. Paseo Del Norte requires environmental and schematic documents, right of way acquisition, and utility facilities coordination which may take over six years to accomplish.

Several minor arterials make up the remaining street system for the site. Minor Arterials 1, 2, 3 and 4 would transition main highway traffic from Paseo del Norte and Redd Road to local streets serving future residential areas in the property. Minor Arterial 2 consists of the extension of Helen of Troy Drive from Redd Road to Paseo Del Norte providing a loop for internal circulation and a secondary point of access from the south. Minor Arterial 1 extends from Paseo del Norte to the south-eastern boundary of the property. Minor Arterial 4 extends from Paseo Del Norte to Minor Arterial 2 where it dead ends. Minor Arterial 3 is north of Trans-Mountain Road. See Appendix Design Guidelines for typical section layouts of the roadways.

TRAFFIC PROJECTIONS METHODOLOGY

Projected traffic information used in this Traffic Impact Study was derived using the traffic equations from the Institute of Transportation Engineers Trip Generation Manual, January 1991. The equations selected are those for corresponding land uses i.e., single-family detached housing, school, office park, general office building and city park. The proposed land use was assumed to be fully developed for the 2004 analysis year. The land use was used in the computation of the traffic information. The study area was divided into several traffic generating zones. The Peak Hour, and Average Daily Traffic volumes generated from those zones were computed at nearby major intersections. See Figure 5-4 for delineation of zones.

PROJECTED TRAFFIC INFORMATION

City of El Paso Traffic Impact Studies Guidelines require that average weekday traffic volumes, peak hour traffic, twenty year projected traffic and projected turning movements generated by the development be shown on this study.

The following tables summarize the computed volumes expressed as number of vehicle trips at each intersection for the years 2004 and 2030.

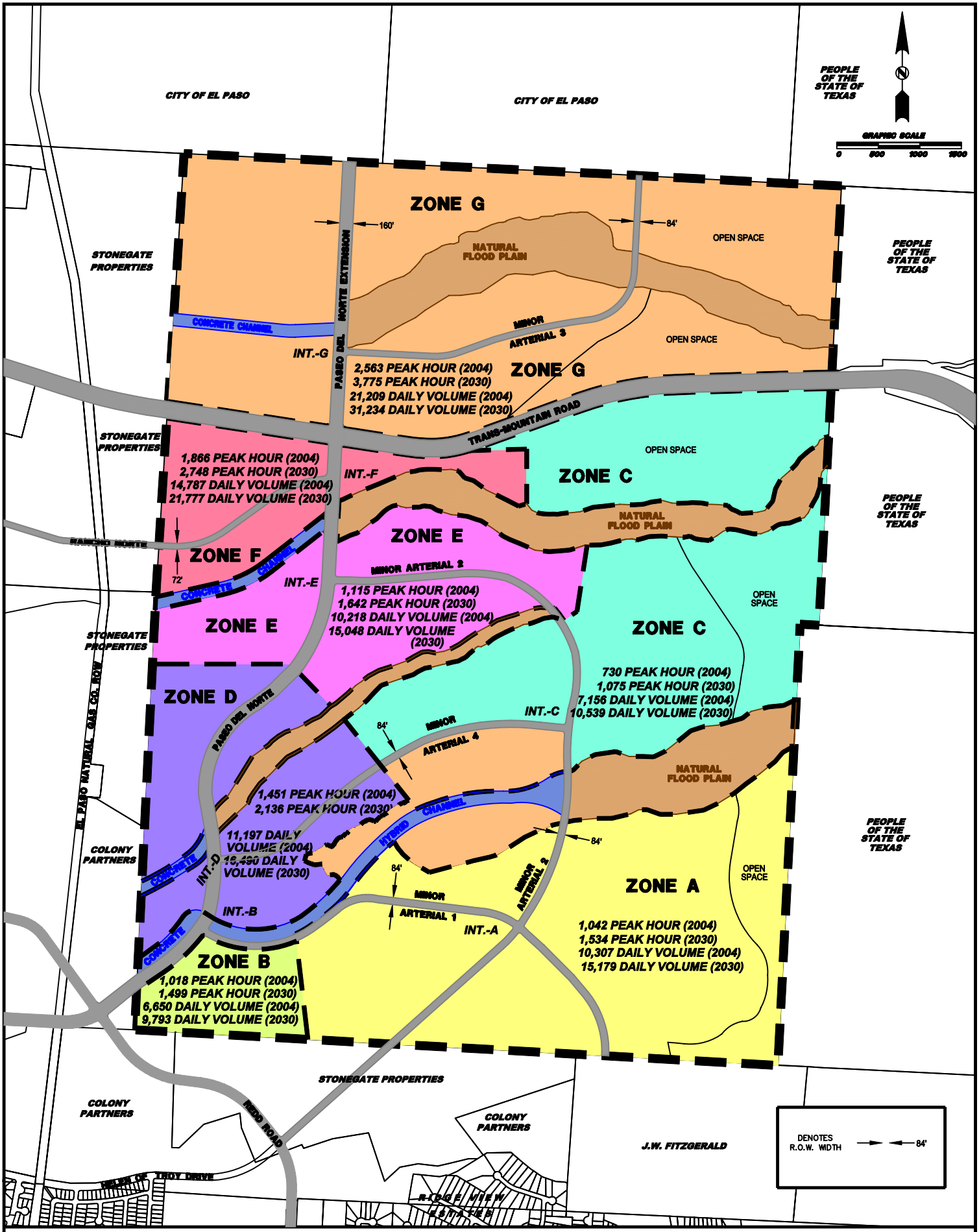

FIGURE 5-4
PROPOSED TRANSPORTATION NETWORK AND TRAFFIC GENERATING ZONES

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A 1.5% yearly growth rate was used to project the 2004 traffic information to the year 2030. This growth rate was based on census data for current population growth rate for the City of El Paso West side area obtained from the March 2003, City of El Paso Region Demo-Pak by the Department of Planning, Research and Development.

Table 5-1 – 2004 Traffic Data (Fully Developed)

Intersection ID	Peak Hour	Daily Volume
A	1,042	10,307
B	1,018	6,650
C	730	7,156
D	1,451	11,197
E	1,115	10,218
F	1,866	14,787
G	2,563	21,209

Table 5-2 – 2030 Projected Traffic Data

Intersection ID	Peak Hour	Daily Volume
A	1,534	15,179
B	1,499	9,793
C	1,075	10,539
D	2,136	16,490
E	1,642	15,048
F	2,748	21,777
G	3,775	31,234

TRAFFIC ASSIGNMENT

The 2004 and 2030 Traffic Data was distributed to each intersection. Using a 0.60 directional traffic factor and 0.1 turning movement factor, the peak hour traffic volumes were then split into turning movements. The distribution factors were based on historical traffic data from previous projects i.e., George Dieter and Lee Boulevard. See Figure 5-5 and Figure 5-6 for intersection trip assignments.

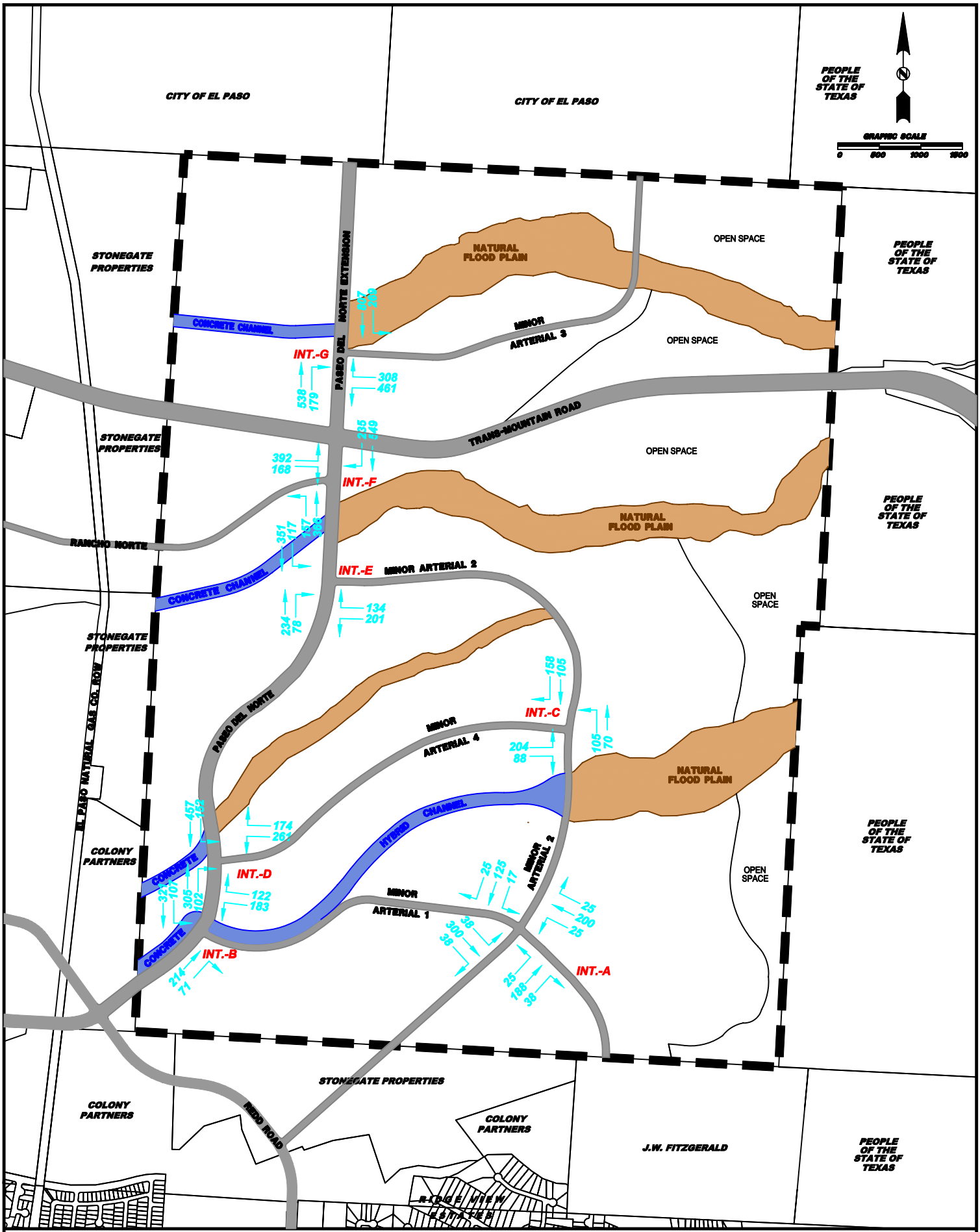

FIGURE 5-5

INTERSECTION TRIP ASSIGNMENTS (2004)

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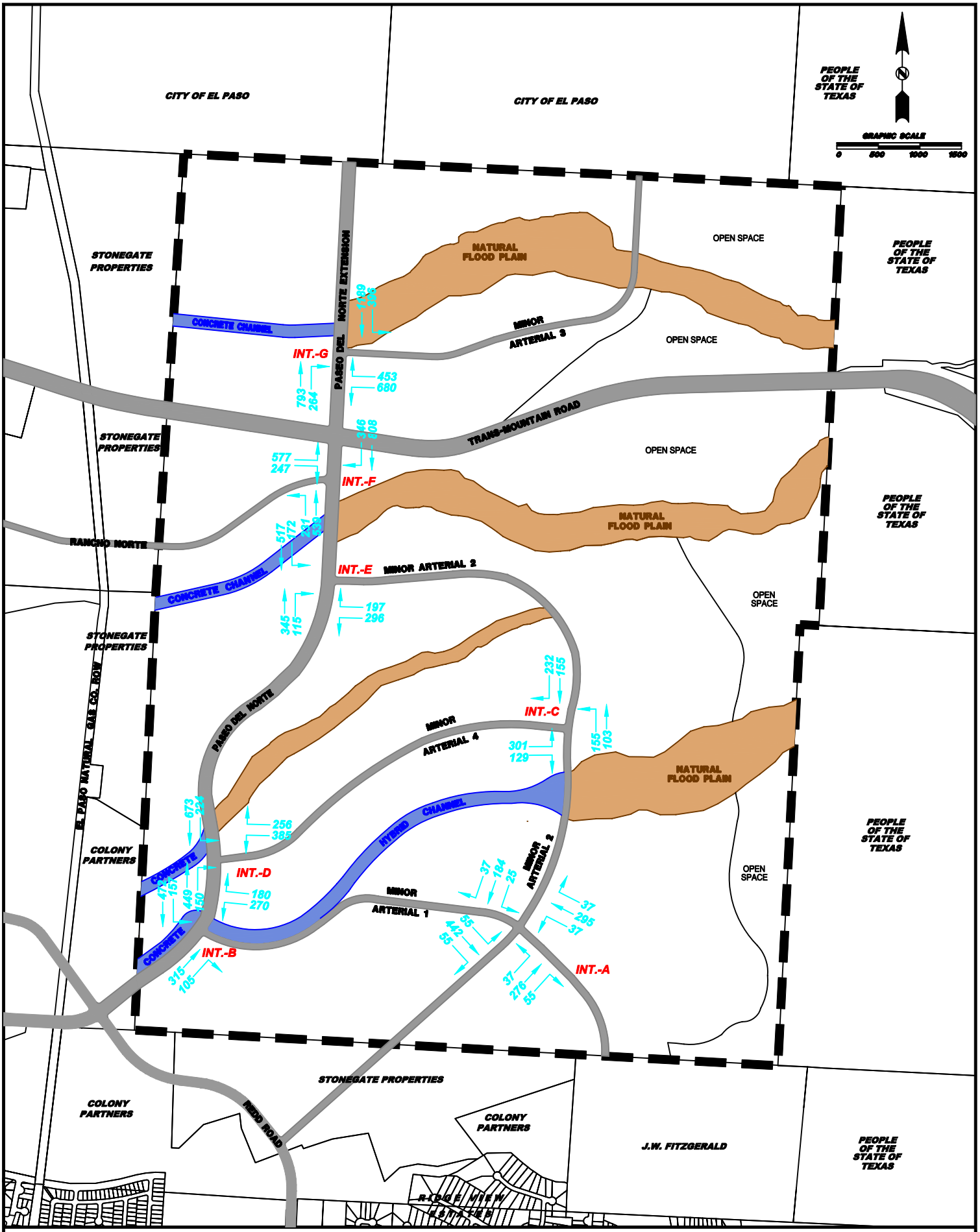

FIGURE 5-6
INTERSECTION TRIP ASSIGNMENTS (2030)

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HIGHWAY CAPACITY SIGNALIZED INTERSECTION ANALYSIS

Highway Capacity 2000 Software (HCS2000) was used to analyze the capacity of the transportation network as required by the City of El Paso Traffic Impact Studies Guidelines.

Intersections A through G were analyzed with HCS2000. The following assumptions were used to perform the intersection analysis:

1. Minor Arterials will have exclusive left turn lane, two through lanes with right lane being a shared right turn lane.
2. A peak hour factor of 0.90
3. Free flow speed of 40 mph
4. Signal control intersections with 60 second cycles and upper limit cycle of 120 seconds
5. Signalized Intersection Planning Analysis Module was used

Intersections A and C were analyzed as an all-way stop controlled intersection to determine if the intersections could function without signalization. Intersection A is functioning at Level of Service (LOS) C under 2004 peak hour traffic and LOS F under 2030 peak hour traffic. Intersection C is functioning at LOS A and LOS B respectively for 2004 and 2030 peak hour traffic. Refer to Highway Capacity Worksheet Results at end of this section. All intersections connecting to Paseo Del Norte were assumed to be signalized intersections.

A signalized intersection is functioning below capacity if the volume to capacity ratio is below 1.0. The critical v/c ratio is the critical phase volume times the cycle length divided by the reference sum volume times the green time (v/c=V*C/s*g). All intersections are functioning under capacity for the year 2004 analysis period as shown on Table 5-3. The volume to capacity ratio is between 0.29 and 0.81. Refer to Highway Capacity Worksheet Results at end of this section.

Table 5-3 – 2004 Intersection Analysis Summary

Intersection ID	Critical Volume/Capacity Ratio	Status
A	0.29	Under Capacity
B	0.37	Under Capacity
C	0.45	Under Capacity
D	0.52	Under Capacity
E	0.40	Under Capacity
F	0.76	Under Capacity
G	0.81	Under Capacity

Intersections A, B, C, D and E are functioning under capacity for the year 2030 analysis period. Intersection F and G are functioning near and at capacity for the year 2030 analysis period. The results are shown on Table 5-4. Refer to Highway Capacity Worksheet Results at end of this section.

Table 5-4 – 2030 Intersection Analysis Summary

Intersection ID	Critical Volume/Capacity Ratio	Status
A	0.43	Under Capacity
B	0.54	Under Capacity
C	0.67	Under Capacity
D	0.77	Under Capacity
E	0.59	Under Capacity
F	0.85	Near Capacity
G	1.01	At Capacity

HIGHWAY CAPACITY ARTERIAL PLANNING ANALYSIS

Highway Capacity Arterial Level of Service Analysis was performed on the arterial segments. The following tables summarized the arterial level of service analysis for 2004 and 2030 traffic information. Level of Service D or better is computed for the 2030 Arterial Planning Analysis.

Table 5-5 – 2004 Arterial Planning Analysis Summary

Roadway	Segment Volume	Length (Miles)	Control Delay (sec/v)	Level of Service
Rancho Norte	7,394	0.50	18.5	C
Minor Arterial 1	7,814	0.77	17.9	C
Minor Arterial 2A	8,732	0.48	18.3	D
Minor Arterial 2B	7,665	0.82	17.9	C
Minor Arterial 3	8,484	1.23	18.2	B
Minor Arterial 4	8,057	0.86	18.0	C

Table 5-6 – 2030 Arterial Planning Analysis Summary

Roadway	Segment Volume	Length (Miles)	Control Delay (sec/v)	Level of Service
Rancho Norte	10,889	0.50	20.8	D
Minor Arterial 1	11,507	0.77	19.8	C
Minor Arterial 2A	12,859	0.48	20.5	D
Minor Arterial 2B	11,289	0.82	19.6	C
Minor Arterial 3	12,494	1.23	20.3	B
Minor Arterial 4	11,866	0.86	20.0	C

RECOMMENDATIONS

- The proposed transportation network conforms to the Metropolitan Planning Organization's Metropolitan Transportation Plan.

- The proposed transportation network requires changes to the City of El Paso's Thoroughfare Plan as described in this section of the Land Study.

- The proposed street network provides the necessary roadway infrastructure to the proposed land uses.

- Two left and two right turn lanes are recommended for the westbound traffic for intersections F and G.

- Traffic warrants will be needed to justify signalized intersections as the area develops.

HIGHWAY CAPACITY WORKSHEET RESULTS